DRAWMER

Dual Channel Vacuum Tube Compressor

OPERATOR'S MANUAL

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ONE YEAR LIMITED WARRANTY

Drawmer Electronics Ltd., warrants the Drawmer 1968 Dual Channel Vacuum Tube Compressor to conform substantially to the specifications of this manual for a period of one year from the original date of purchase when used in accordance with the specifications detailed in this manual. In the case of a valid warranty claim, your sole and exclusive remedy and Drawmer's entire liability under any theory of liability will be to, at Drawmer's discretion, repair or replace the product without charge, or, if not possible, to refund the purchase price to you. This warranty is not transferable. It applies only to the original purchaser of the product.

For warranty service please call your local Drawmer dealer. Alternatively call Drawmer Electronics Ltd. at +44 (0)1709 527574. Then ship the defective product, with transportation and insurance charges pre-paid, to Drawmer Electronics Ltd., Coleman Street, Parkgate, Rotherham, S62 6EL UK. Write the RA number in large letters in a prominent position on the shipping box. Enclose your name, address, telephone number, copy of the original sales invoice and a detailed description of the problem. Drawmer will not accept responsibility for loss or damage during transit.

This warranty is void if the product has been damaged by misuse, modification or unauthorised repair.

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DRAWMER

1968

Dual Channel
Vacuum Tube Compressor

SAFETY CONSIDERATIONS

CAUTION - MAINS FUSE

TO REDUCE THE RISK OF FIRE
REPLACE THE MAINS FUSE ONLY WITH
A FUSE THAT **CONFORMS TO IEC127-2.**
250 VOLT WORKING, TIME DELAY TYPE
AND BODY SIZE OF 20mm x 5mm.
THE MAINS INPUT FUSE MUST BE
RATED AT 230V=T160mA and 115V=T315mA.

CAUTION - MAINS CABLE

DO NOT ATTEMPT TO CHANGE
OR TAMPER WITH THE
SUPPLIED MAINS CABLE.

CAUTION - SERVICING

DO NOT PERFORM ANY SERVICING.
REFER ALL SERVICING TO QUALIFIED
SERVICE PERSONNEL.

WARNING

TO REDUCE THE RISK OF FIRE OR
ELECTRIC SHOCK DO NOT EXPOSE
THIS EQUIPMENT TO RAIN OR MOISTURE.

In the interests of product development, Drawmer reserve the right to modify or improve specifications of this product at any time, without prior notice.

DRAWMER
1968 Mercenary Edition
DUAL CHANNEL VACUUM TUBE COMPRESSOR

INTRODUCTION

The 1968 is a 1U Tube/FET dual channel / 'stereo bus' compressor which by design delivers a transparent 'open' sound even during periods of heavy compression.

The original Drawmer 1960 used a tube stage at the front of the compressor, whilst the 1968 utilisies a J-FET (Field Effect Transistor) gain reduction circuit that operates faster than an opto-isolator. The compressor uses a 12AX7 tube makeup gain amplifier where you can add, with the Output Gain control, up to 20 dB of additional gain.
The need for a ratio control as been removed as the compressor operates on the soft knee principle where the onset of compression is progressive.
The 1968 expands attack times to six choices: 2, 9, 15, 25, 30 and 50 ms. Release times come in three fixed times (100ms, 500 ms and 1 second) and three program-dependent choices--200 ms to 2 sec, 500 ms to 5 sec and 1 to 10 seconds--all program-dependent and automatic.
The 1968 provides full sidechain access for connecting an external equalizer for vocal stressing or de-essing.

Featured on both channels is a switchable 'BIG' mode which applies less processing to the fundamental low frequency but still disciplines the upward associated harmonics which if untamed can result in a 'boomy' or 'boxy' sound. The result - a solid bottom end with enhanced sub-bass and a smoother, wider frequency response overall. This lets the operator use more compression on an overall mix with less pumping action caused by a kick and/or bass instrument.

The outputs of Channels 1 and 2 are monitored on two yellow illuminated VU meters - with a red warning glow to signify 'approaching clipping'. A three-position switch adjusts the meters to show either normal output level, gain reduction or VU +10dB mode, which re-scales the meter for users working at 'hot' output levels.
An output switch selects normal compressor output, hard-wired bypass and sidechain listen.

The key features are as follows:

- 2 Channel Tube/FET Compressor
- 2 soft-knee compressors with variable threshold, attack, release and output gain
- Switchable BIG control on each channel
- Dual mono or true stereo link operation
- Side chain access and side chain listen facility
- VU metering of gain reduction and output levels
- Switchable +10dB mode on VU re-scales the meter for users working at 'hot' output levels.
- VU red warning glow to signify 'approaching clipping'
- Balanced +4dB XLR in/outs

INSTALLATION

The 1968 is designed for standard 19" rack mounting and occupies 1U of rack space. Avoid mounting the unit directly above power amplifiers or power supplies that radiate significant amounts of heat and always connect the mains earth to the unit. Fibre or plastic washers may be used to prevent the front panel becoming marked by the mounting bolts. Because the tube circuitry generates more heat than an equivalent solid-state design, it is advisable to leave space above the unit to allow the heat to dissipate.

AUDIO CONNECTIONS

The inputs and outputs are electronically balanced on conventionally wired XLRs (pin 1 screen, pin 2 hot, pin 3 cold and XLR shell is connected to chassis). The operating level is nominally +4dBu. Balanced use is recommended.

• Interference:

If the unit is to be used where it maybe exposed to high levels of disturbance such as found close to a TV or radio transmitter, we advise that the unit is operated in a balanced configuration. The screens of the signal cables should be connected to the chassis connection on the XLR connector as opposed to connecting to pin1. The 1968 conforms to the EMC standards.

• Ground Loops:

If ground loop problems are encountered, never disconnect the mains earth, but instead, try disconnecting the signal screen on one end of each of the cables connecting the outputs of the 1968 to the patchbay. If such measures are necessary, balanced operation is recommended.

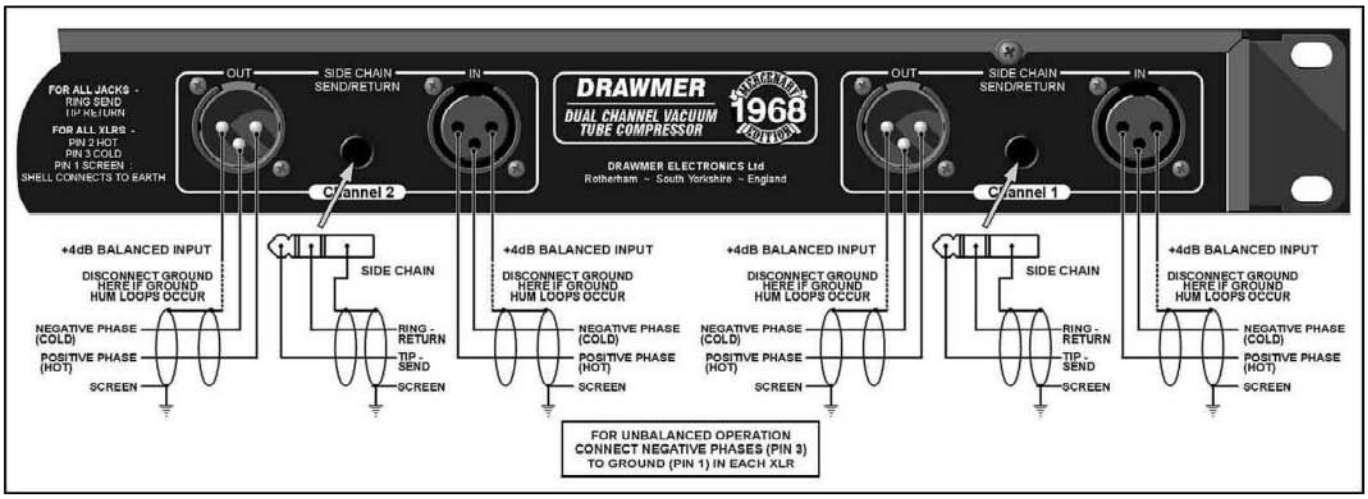

fig.1 **1968 WIRING**

The side chain feature on the 1968 is part of the compressor feedback stage and would normally be connected to a normalised or semi-normalised pair of patchbay contacts. This would allow the user to insert additional EQ for some de-essing, or frequency conscious compression. The side-chain access point is unbalanced, connection is via stereo 3" jacks, the wiring convention being: ring is signal send, tip is signal return and sleeve ground.

POWER CONNECTION

The 1968 unit will be supplied with a power cable suitable for domestic power outlets in your country. For your own safety, it is important that you use this cable to connect to the mains supply earth. The cable must not be tampered with or modified.

The power supply socket has an integral fuse drawer containing the power fuse of the same value, to suit the mains voltage for which the unit has been supplied. Removal of the drawer is only possible with the power cord removed. The fuse should never blow under normal operation. If the fuse is suspected of having blown, then a fault will have occurred and this fault condition should be inspected by a qualified service engineer. When replacing the fuse, always comply with the Safety Instructions.

If the unit is to be used with a mains input operating voltage different to that for which the unit is supplied, the following procedure must be carried out by a technically competent person, *(see following diagrams)*

1: Disconnect the unit from the mains.

2: Using a number 1 size pozidrive screwdriver, remove the seven self -tapping screws that retain the top cover.Two screws are found along each side; two along the top edge at the rear; and the upper central screw on the front facia panel.

3: Slide the voltage change-over switch **(SW8)** until the correct (or nearest) mains input voltage is visible on the switch actuator.
(see fig.2)

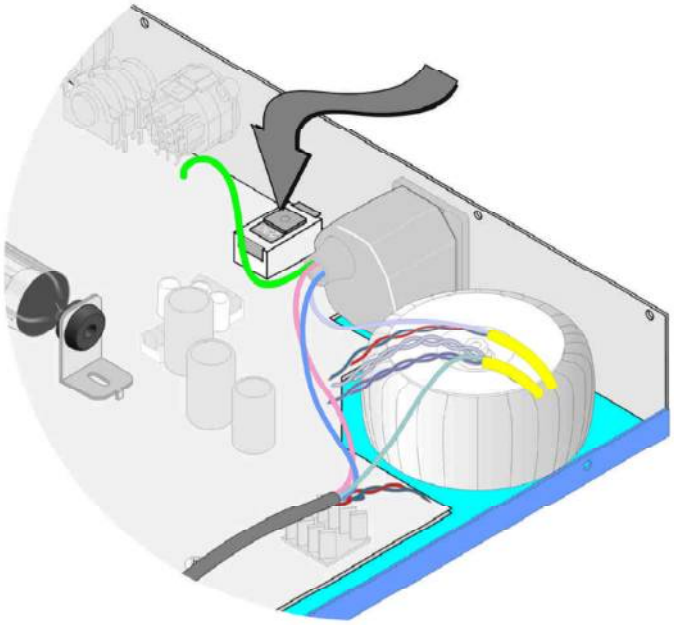

fig.2 **The Voltage Selector Switch**

For conversion to 115Volt AC (previously set to 230Volt AC).....

4a: Exchange the 160mA fuse below the mains socket for a similar type rated at 315mA

For conversion to 230Volt AC (previously set to 115Volt AC).....

4b: Exchange the 315mA fuse below the mains socket for a similar type rated at 160mA

In both cases:

5: Replace the top cover using the seven screws.

6: Re-connect to mains power source.

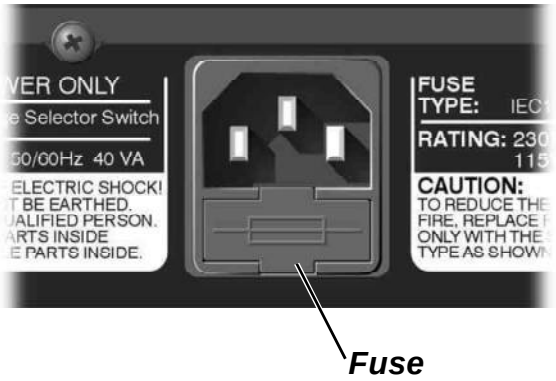

fig.3 **The Location of the Fuse**

CONTROL DESCRIPTION

Threshold:

Determines the input level above which gain reduction will be applied and may be set in the range -30dB to infinity. Because the compression system is based on the Soft Knee principle, the onset of compression is progressive, so no Ratio control is necessary.

Big:

Makes the compressor side chain less sensitive to low bass frequencies, so reducing the ducking effect caused by bass energy and effectively boosting the bass output.

Attack:

Six switchable Attack settings are provided giving various settings. The actual attack time is further modified by the release setting chosen

Attack Times:

1 2 ms
2 8 msec
3 15 msec
4 25 msec
5 30 msec
6 50 msec

Release:

There are three **fixed** Release times and a further three which are **programme dependent**. Switch settings 1 through to 3 provide progressively increasing release times, while positions 4, 5 and 6 cause the release times to vary in a manner which automatically adapts to the dynamics of the incoming signal, as detailed below.

Release Times

1 100 ms (Fixed)
2 500 msec (Fixed)
3 1 sec (Fixed)
4 Semi-Auto 200 ms to 2 sec Signal dependent
5 Semi-Auto 500 ms to 5 sec signal dependent
6 Automatic 1 sec to 10 sec signal dependent

Output: (Gain)

The Output level may be amplified, or attenuated by up to 20dB to compensate for level changes caused by compression.

VU Meter

A moving coil VU meter monitors either the level of the output signal or the amount of gain reduction taking place. Because the meter has VU characteristics, it closely reflects what is actually being heard, though will not respond quickly enough to register short signal peaks.

VU +10dB/VU / GR

A three-position switch adjusts the meters to show either normal output level, gain reduction or VU +10dB mode, which re-scales the meter for users working at 'hot' output levels. In other words, with the switch at VU +10dB - when the VU meter reads 0dB the actual level is +10dB.

Side Chain/Norm

S/C Listen routes the side-chain signal directly to the output allowing the effects of any additional side-chain processing, such as equalisation, to be monitored.
Normal mode, the signal is passed through the compressor.
Bypass takes the compressor and the vacuum tubes out of circuit path; the output signal is taken from the channel input point.

Stereo Link

This makes Channel 1 controls the stereo master and disables the compressor stage of channel 2 when the unit is used for processing a stereo signal. Since the same gain reduction is applied to both audio channels no image shifting can occur.

THE QUICK SETUP PROCEDURE

Use the following procedure to setup the compressor.

- Initially, set the Attack selector to 3 (a Medium position) and set Release to 6 (Programme Dependent).
- Set the Mode switch to Normal and the Meter switch to GR.
- With programme material playing, adjust the Threshold control until the desired amount of gain reduction registers on the meters.
- Use the Output Gain control to restore any level lost due to compression.
- If necessary, change the Attack and Release settings to suit the material.

GENERAL INFORMATION

It is the responsibility of the installer to ensure that the continuous power rating of the speakers is not exceeded, as Drawmer Electronics Ltd will not accept any responsibitlity for speaker damage caused by incorrect settings.

IF A FAULT DEVELOPS

For warranty service please call Drawmer Electronics Ltd. or their nearest authorised service facility, giving full details of the difficulty.

A list of all main dealers can be found on the Drawmer webpages.

On receipt of this information, service or shipping instructions will be forwarded to you.

No equipment should be returned under the warranty without prior consent from Drawmer or their authorised representative.

For service claims under the warranty agreement a service Returns Authorisation (RA) number will be issued.
Write this RA number in large letters in a prominent position on the shipping box. Enclose your name, address, telephone number, copy of the original sales invoice and a detailed description of the problem.

Authorised returns should be prepaid and must be insured.

All Drawmer products are packaged in specially designed containers for protection. If the unit is to be returned, the original container must be used. If this container is not available, then the equipment should be packaged in substantial shock-proof material, capable of withstanding the handling for the transit.

CONTACTING DRAWMER

Drawmer Electronics Ltd., will be pleased to answer all application questions to enhance your usage of this equipment. Please address correspondence to:

Drawmer (Technical Help line)
Coleman Street
Parkgate
Rotherham
S62 6EL
UK

Alternatively contact us by E-mail on :

tech@drawmer.com

Further information on all Drawmer dealers, Authorised service departments and other contact information can be obtained from our web pages on:

http://www.drawmer.com

BLOCK DIAGRAM